LOOPS:

1. Write a `void` function that will print the first `n` positive numbers to the screen. For example, if the call to the function is `print_numbers(5)` the output will be `1 2 3 4 5`.
   ```c
   void print_numbers (int n) {
   }
   ```

2. Write a `void` function that will print the first `n` positive even numbers to the screen. For example, if the call to the function is `print_even(5)` output will be `2 4 6 8 10`.
   ```c
   void print_even (int n) {
   }
   ```

3. Write a value-returning function called `sum_of_squares` that accepts one `int` parameter `n` and returns the sum of squares of the numbers from `1` to `n`. For example, the call to the function is `sum_of_squares(3)` the output should be `14` because `1^2 + 2^2 + 3^2 = 1 + 4 + 9 = 14`.
   ```c
   int sum_of_squares(int n){
   }
   ```
4. What is the output of the following program?
#include <iostream>
#include <cstdlib>
using namespace std;

int main()
{
    for(int n = 3; n < 20; n += 4) {
        cout << n << " ";
        if(n%5 == 0) {
            cout << "first \n";
        } else if((n%5 == 1) || (n%5 == 2)) {
            cout << "second \n";
        } else {
            cout << "third \n";
        }
        if(n%2 == 0) {
            cout << "even \n";
        } else {
            cout << "odd \n";
        }
        cout << endl;
    } // for
    return(EXIT_SUCCESS);
}

5. Rewrite above for loop as a while loop.

for(int n = 3; n < 20; n += 4) {
    cout << n << " ";
    if(n%5 == 0) {
        cout << "first \n";
    } else if((n%5 == 1) || (n%5 == 2)) {
        cout << "second \n";
    } else {
        cout << "third \n";
    }
    if(n%2 == 0) {
        cout << "even \n";
    } else {
        cout << "odd \n";
    }
    cout << endl;
} // for
6. During execution of the following program segment:
   a. How many times does the first call to cout execute?
   b. How many times does the second call to cout execute?
   c. What is the output displayed by the program?

   ```cpp
   for (int i = 0; i < 7; i++) {
       for (int j = 0; j < i; j++) {
           cout<< i * j <<"   ";
       }
       cout<<endl;
   }
   ```

7. Rewrite the above nested for loop as a nested while loop
8. Write a single `for` loop to print the following:

if the user enters 1.2345678

the output is
1.2
1.23
1.234
1.2345
etc.
FUNCTIONS

1. What is wrong with the following function? Fix it.
void square (int& x)
{
    x = x * x;

    return (x);
}

2. What is wrong with the following function? Fix it.
void power (int x, int y)
{
    int result = 1;
    while (y > 0) {
        result = result * x;
        y--;
    }
}

3. What is wrong with the following function? Fix it.
void power (int x, int y, int result)
{
    result = 1;
    while (y > 0) {
        result = result * x;
        y--;
    }
}
4. a) What is the output of the following program?
#include <iostream>
#include <cstdlib>
using namespace std;

void power (int& x, int& y, int& result);

int main()
{
    int n1 = 2;
    int n2 = 4;
    int ans;

    power(n1, n2, ans);

    cout<< n1 << " raised to the power " << n2 << " is " << ans << endl;
    return(EXIT_SUCCESS);
}

void power (int& x, int& y, int& result)
{
    result = 1;
    while (y > 0) {
        result = result * x;
        y--;
    }
}

b) Is the output correct? Explain.

c) If the output is correct, modify the code so that expressions such as power(2.5, 2) calculate the correct answer. If the output is incorrect, fix the code by modifying as few lines of code as possible.
5. Rewrite the following single value returning function as a void function.

```c
bool is_even(int n)
{
    if (n % 2 == 0)
        return (true);
    else
        return (false);
}
```

6. Write a void function called `add_feet_inches`, that takes four parameters representing two measurements feet and inches, and add them together to get a new measurement. Both feet and inches are declared as int type and inches range from 0 to 11. We assume that the both measurements are positive. In the example call to this function 3 feet and 8 inches is added to 2 feet and 10 inches. No I/O operations in this function. (1 foot = 12 inches)

For example in the main function if you have the following:

```c
feet = 2;
inches = 10;

add_feet_inches(feet, inches, 3, 8);
```

After the function call, the values in the variables are:

```c
feet = 6;
inches = 6;
```